BLATIGUE Project Report-Standard Static Tests of a 14.3 m Olsen Wing Blade

Chen, Xiao; Trevisi, Filippo; Berring, Peter; Yeniceli, Süleyman Cem; Semenov, Sergei; Madsen, Steen Hjelm; Branner, Kim

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Xiao Chen, Filippo Trevisi, Peter Berring,
Süleyman Cem Yeniceli, Sergei Semenov,
Steen Hjelm Madsen, Kim Branner

Department of Wind Energy, DTU

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DTU Vindenergi
Institut for Vindenergi

Author(s): Xiao Chen, Filippo Trevisi, Peter Berring, Süleyman Cem Yeniceli, Sergei Semenov, Steen Hjelm Madsen, Kim Branner

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Abstract:

A 14.3-m long wind turbine blade is tested under static loads in the Large Scale Test Facility at DTU Risø Campus. This report describes the test setups, sensor instrumentation, load introduction and data process in detail. The static tests are performed following the IEC 61400-23:2014 test standard in four loading directions. The blade is instrumented with strain gauges, draw-wire type displacement transducers and load cells. The blade is loaded in four locations along the length using hydraulic winches to apply the desired test bending moments based on aero-elastic analysis. The deformation and longitudinal strains measured from the tests are compared with analytical calculations. A good agreement is found. No blade damages has been found in the tests.

Department of Wind Energy, Technical University of Denmark, Frederiksborgvej 399, 4000 Roskilde, Denmark

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Technical University of Denmark
DTU Wind Energy
P.O.Box 49
4000 Roskilde
Denmark
Telephone +45 4677 5085
communication@windenergy.dtu.dk

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